Julie Kalk

Contact Information

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Education

Ph.D. in Physics, University of Notre Dame (UND), 2005

Bachelor of Arts, Physics and English, Hamline University (HU), 1997

Employment

Research Associate, Louisiana Tech University *July 2005-present*
Move thesis topic toward publication. Calibration of the D-zero Intercryostat Detector. Assist graduate students in their research.

Research Assistant, UND High Energy Physics Department *Fall 1999 to present*
Service Work: Assisted in the construction of fiberoptic waveguides for the DØ Central Fiber Tracker (CFT). Designed, fabricated and tested LED calibration system for the CFT. Performed X-ray calibration of CFT scintillating fiber ribbons. Studied the efficiency of the CFT during its commission. Designed and coded GUI to monitor the CFT during operation. Trained fellow collaborators in the operation and monitoring of the CFT. Designed, implemented and operated a system to identify and extract electron and muon events from the DØ data stream.

Thesis Work: Studied the performance of the DØ tracking system (CFT, Silicon Microstrip Detector and Preshower Detectors) using electrons. Established a method for separately extracting W^+ and W^- events from QCD background using matrix reduction. Performed the first-ever W-boson charge asymmetry measurement at DØ .

Private Tutor, State of California *2000-2001*
Tutored children grades 1-6 in all subjects, focusing on reading and math skills.

Teaching Assistant, UND Physics Department *Fall 1998-Fall 1999*
Duties included grading, assisting in laboratory sessions, and holding office hours to assist students with their coursework. Some laboratory lecturing. Assisted in redesigning the lab manual for Physics 221, General Physics.

Walk-in Tutor, HU Physics Department *Fall 1996-Spring 1997*
Assisted General Physics students during walk-in tutoring sessions.

Tech Aide, 3M *1996-1997*
Assisted in an industrial laboratory developing co-extruded polymer optical thin film technology. Duties included microscopy, spectroscopy, histology, and birefringence and viscosity analysis. Developed an optical-digital microscopy system to measure the thickness of the film layers.

Research Assistant, HU Physics Department *Spring 1995 to Spring 1997*
Assisted Dr. Richard Pontinen in his research of Brillioun Scattering. Duties included developing photography plates, aligning a Fabry-Perot Interferometer, developing sample purification methods, design and fabrication optically transparent liquid containment equipment.

Conferences and Lectures

American Physical Society April Meeting, Philadelphia, Pennsylvania *April 8, 2003*
Presented *The Lepton Charge Asymmetry in Decays of W Bosons in $p\overline{p}$ Collisions.*

Indiana University South Bend, South Bend, Indiana *October 2003*
Presented the lecture *Graduate Studies in Physics.*

In a large collaboration like DØ , members are frequently asked to give presentations of their work. These presentations range from informal talks to groups of 5-10 people to formal presentations at the collaboration's quarterly workshops. Below is a listing of formal workshop presentations selected from more than 50 presentations at all levels.

$W \rightarrow e\nu$ Charge Asymmetry Measurement *March 1, 2005*

Status of $W \rightarrow e\nu$ Charge Asymmetry *December 9, 2004*

$W \rightarrow e\nu$ Production Asymmetry Update *October 16, 2003*

The WZ Event Database *April 25, 2002*

The WZ Event Database *February 14, 2002*

The WZ Event Database *November 8, 2001*

WZ Event Database *September 13, 2001*

WZ Run Database *July 25, 2001*

Awards and Honors

GE Fund Graduate Fellowship *Fall 1997*
An award from GE Fund's "Faculty For the Future" program to encourage minority and women students to become college professors.

The Alfred D. and Hazel Stedman Endowed Writing Awards, HU *Spring 1997*
Awarded for the best regular curriculum (non-English) paper written by a senior student.

Alumni Award in Physics, HU *Spring 1996*
This award is given during the junior year to a promising physics major.

Robert Morris Page Physics Scholarship, HU *Spring 1995*
Given to the student who shows high achievement and promise in physics.

Hamline Honors Scholarship, HU *annually 1993-1996*
Acheivement-based tuition scholarship.

Professional and Honor Societies

American Physical Society
Physics professional society.

Phi Beta Kappa
National honor society.

Sigma Tau Delta
National English honor society.

Education Outreach

Fermilab tour guide for QuarkNet (http://quarknet.fnal.gov/) teachers and students. *Fall 2004*

Lab presentations at Girl Scouts science fair in Jolliet, IL. *Spring 2004*

Recruitment table for HU at college fair in Jolliet, IL. *Fall 2003*

Lab presentations at Girl Scouts science fair through Women in Natural and Social Sciences (WINSS) student group at HU. *1994-1997*

Computing

Skilled in C++ and Python.

Proficient in HTML and LaTeX.

Experience in Pascal.

Extensive experience in ROOT (http://root.cern.ch/), CERN's Object-Oriented Data Analysis Framework and NIH Image (http://rsb.info.nih.gov/nih-image/), the National Institute of Health's image processing and analysis program.

Extensive Linux/Unix experience. Served as administrator of UND's Linux sub-cluster at Fermilab.

Publications

Also as Julie Torborg

1. "Measurement of W Boson Charge Production Asymmetry in the Electron Decay Channel," J. Torborg, J. Hays. DØ Technical Note, 2005.
2. "Search for Doubly-charged Higgs Boson Production in the Decay $H^{++}H^{--} \to \mu^+\mu^+\mu^-\mu^-$ with the DØ Detector at $\sqrt{s} = 1.96$ TeV", V. M. Abazov *et al.*, Phys. Rev. Lett **93**, 141801 (2004); hep-ex/040415; FERMILAB-PUB-04/045-E.
3. "Observation and Properties of the $X(3872)$ Decaying to $J/psi\pi^+\pi^-$ in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV", V. M. Abazov *et al.*, Phys. Rev. Lett. **93**, 162004 (2004); hep-ex/0405004, Fermilab-Pub-04/061-E.
4. "Search for Supersymmetry with Gauge-Mediated Breaking in Diphoton Events at DØ", V. M. Abazov *et al.*, Phys. Rev. Lett. **94**, 041801 (2005); hep-ex/0408146; FERMILAB-Pub-04/198-E.
5. "Measurement of Dijet Azimuthal Decorrelations at Central Rapidities in $p\bar{p}$ Collisions at $\sqrt{s} =$ 1.96 TeV", V. M. Abazov *et al.*, submitted to Phys. Rev. Lett. (2004); hep-ex/0409040; FERMILAB-Pub-04/217-E.
6. "Measurement of the B_s^0 Lifetime in the Exclusive Decay Channel $B_s^0 \to J/\psi\phi$", V. M. Abazov et al, Phys. Rev. Lett. **94**, 042001 (2005); hep-ex/0409043; FERMILAB-Pub-04-225-E.
7. "A Search for the Flavor-Changing Neutral Current Decay $B_s^0 \to \mu^+\mu^-$ in $p\bar{p}$ Collisions at $\sqrt{s} =$ 1.96 TeV", V. M. Abazov et al, Phys. Rev. Lett. **94**, 071802 (2005); hep-ex/0410039; FERMILAB-Pub-04-215-E.
8. "Measurement of the Ratio of B^+ and B_0 Lifetimes", V. M. Abazov et al, submitted to Phys. Rev. Lett. (2004); hep-ex/0410052; FERMILAB-Pub-04-284-E.
9. "Measurement of the Λ_b Lifetime in the Decay $\Lambda_b \to J/\psi\Lambda$ with the DØ Detector", V. M. Abazov et al, accepted for publication in Phys. Rev. Lett. (2005); hep-ex/0410054; FERMILAB-Pub-04-286-E.
10. "A Search for $Wb\bar{b}$ and WH Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV", V. M. Abazov et al, accepted for publication in Phys. Rev. Lett. (2004); hep-ex/0410062; FERMILAB-Pub-04-288-E.
11. "Measurement of the WW Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV", V. M. Abazov et al, accepted by Phys. Rev. Lett. (2005); hep-ex/0410066; FERMILAB-Pub-04-293-E.

12. "A Measurement of the Ratio of Inclusive Cross Sections $p\bar{p} \to Zb/p\bar{p} \to Zj$ at $\sqrt{s} = 1.96$ TeV", V. M. Abazov et al, submitted to Phys. Rev. Lett. (2004); hep-ex/0410078; FERMILAB-Pub-04-297-E.

13. "A search for anomalous heavy-flavor quark production in association with W bosons", V. M. Abazov et al, submitted to Phys. Rev. Lett. (2004); hep-ex/0411084; FERMILAB-Pub-04-359-E.

14. "First measurement of $\sigma(p\bar{p} \to Z) \times \mathrm{Br}(\mathrm{Z} \to \tau\tau)$ at $\sqrt{s} = 1.96$ TeV", V. M. Abazov et al, submitted to Phys. Rev. Lett. (2005); hep-ex/0412020; FERMILAB-Pub-04-381-E.

15. "Search for first-generation scalar leptoquarks in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV", V. M. Abazov et al, submitted to Phys. Rev. Lett. (2005); hep-ex/0412029; FERMILAB-Pub-04-389-E.

16. "Study of $Z\gamma$ events and limits on anomalous $ZZ\gamma$ and $Z\gamma\gamma$ couplings in $p\bar{p}$ collisions at $\sqrt{(}s) = 1.96$ TeV", V. M. Abazov *et al.*, submitted to Phys. Rev. Lett.; hep-ex/0502036; FERMI-PUB-05-023-E.

References

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